

IN THE CLAIMS:

Amend claims 1-2¹, cancel claims 7, 8, 10 and 11 without prejudice or admission, and add new claims 13-30 as shown in the following listing of claims, which replaces all previous listings and versions of claims.

1. (currently amended) A working fluid injection apparatus for a fluid dynamic pressure bearing, the apparatus being used for injecting a working fluid into a gap between a housing and a shaft in a bearing unit of the fluid dynamic pressure bearing with that is constituted by the housing having an opening portion, and the shaft being held in the housing with its an end of the shaft exposed from the opening portion, and the gap forming a ring-shaped open portion in the opening portion of the housing, the working fluid injection apparatus comprising:

an adapter configured to support the bearing unit in a state in which the ring-shaped open portion of the bearing unit housing opens upwards;

a cover member, which is arranged, in a contact state, on an upper surface of the housing, in which a ring shape member having an upper opening, a lower opening larger than the ring-shaped open portion of the bearing unit housing, and a tapered inner surface with a radial dimension that increases gradually

¹ Claims 3-6, 9 and 12 were canceled in a preliminary amendment filed August 16, 2006.

from the lower opening to the upper opening, the cover member being configured to be mounted in contact with an upper surface of the bearing unit housing when the bearing unit is supported by the adapter so that the lower opening of the cover member surrounds the ring-shaped open portion of the bearing unit housing and so that an outer peripheral surface of the exposed end of the bearing unit shaft and the tapered inner surface of the cover member form a reservoir portion that communicates with the ring-shaped open portion of the bearing unit housing and that is configured to store a working fluid; for the gap in the opening portion is arranged upward, and which forms, above the open portion, a reservoir portion capable of storing the working fluid with the reservoir portion communicated with the open portion;

a chamber that sealably holds the bearing unit onto which the cover member is mounted;

a valve device that ~~opens/closes~~ opens and closes an internal space of the chamber with respect to ~~an~~ a surrounding external space thereof;

an exhaust device that exhausts air ~~in~~ from the internal space of the chamber to place the internal space of the chamber in obtain a predetermined decompressed state; and

a dispenser that ~~drops the~~ dispenses a working fluid ~~ente~~
into the reservoir portion in when the chamber sealably holds the
bearing unit and the internal space of the chamber is in the
predetermined decompressed state.

2. (currently amended) ~~The~~ A working fluid injection
apparatus for a fluid dynamic pressure bearing according to claim
~~1, wherein 1;~~ wherein:

the adapter supports the bearing unit so that an outer
peripheral surface of the exposed end of the shaft of the bearing
unit protrudes ~~the shaft is arranged such that its end is~~
~~protruded~~ outward from the opening portion of the housing; and

the reservoir portion is formed to have a ring shape
between the outer peripheral surface of the protruded exposed end
of the shaft and the tapered inner surface of the cover member
when the cover member is mounted in contact with the upper
surface of the bearing unit housing.

3. - 12. (canceled).

13. (new) A working fluid injection apparatus for a fluid
dynamic pressure bearing according to claim 1; wherein a taper
angle of the tapered inner surface of the cover member is in the
range of 45° to 75° with respect to a central axis line of the
bearing unit shaft.

14. (new) A working fluid injection apparatus for a fluid dynamic pressure bearing according to claim 1; wherein a taper angle of the tapered inner surface of the cover member is in the range of 55° to 65° with respect to a central axis line of the bearing unit shaft.

15. (new) A working fluid injection apparatus for a fluid dynamic pressure bearing according to claim 1; wherein the tapered inner surface of the cover member has a taper angle of 60° with respect to a central axis line of the bearing unit shaft.

16. (new) A working fluid injection apparatus for a fluid dynamic pressure bearing according to claim 1; further comprising control means for controlling an intake air flow in the chamber such that the pressure in the chamber is gradually raised from the predetermined decompressed state to an atmospheric pressure state for a time period in the range of 10 to 50 seconds.

17. (new) A working fluid injection apparatus for a fluid dynamic pressure bearing according to claim 1; further comprising control means for controlling an intake air flow in the chamber such that the pressure in the chamber is gradually raised from the predetermined decompressed state to an atmospheric pressure state for a time period in the range of 20 to 40 seconds.

18. (new) A working fluid injection apparatus for a fluid dynamic pressure bearing according to claim 1; further comprising control means for controlling an intake air flow in the chamber such that the pressure in the chamber is gradually raised from the predetermined decompressed state to an atmospheric pressure state for a time period in the range of 25 to 35 seconds.

19. (new) A working fluid injection apparatus for injecting a working fluid into a gap between a housing and a shaft of a bearing unit of a fluid dynamic pressure bearing, the working fluid injection apparatus comprising:

an adapter configured to support the bearing unit in a state in which an end portion of the bearing unit shaft protrudes from an open portion of the bearing unit housing; and

a cover member having an upper opening, a lower opening, and a tapered inner surface with a radial dimension that increases gradually from the lower opening to the upper opening, the cover member being configured to be mounted in contact with an upper surface of the bearing unit housing when the bearing unit is supported by the adapter so that the lower opening of the cover member surrounds the open portion of the bearing unit housing and so that the protruding end portion of the bearing unit shaft and the tapered inner surface of the cover member form a reservoir portion that communicates with the open portion of the bearing unit housing and that is configured to store a working fluid.

20. (new) A working fluid injection apparatus according to claim 19; further comprising a chamber configured to sealably hold the bearing unit onto which the cover member is mounted; a valve device that opens and closes an internal space of the chamber with respect to a surrounding external space thereof; an exhaust device that exhausts air from the internal space of the chamber to place the internal space of the chamber in a predetermined decompressed state; and a dispenser that dispenses a working fluid into the reservoir portion when the chamber sealably holds the bearing unit and the internal space of the chamber is in the predetermined decompressed state.

21. (new) A working fluid injection apparatus according to claim 19; wherein a taper angle of the tapered inner surface of the cover member is in the range of 45° to 75° with respect to a central axis line of the bearing unit shaft.

22. (new) A working fluid injection apparatus according to claim 19; further comprising control means for controlling an intake air flow in the chamber such that the pressure in the chamber is gradually raised from the predetermined decompressed state to an atmospheric pressure state for a time period in the range of 10 to 50 seconds.

23. (new) A working fluid injection apparatus according to claim 19; further comprising a mounting base that supports the adapter; and wherein the adapter has a fitting hole into which an

outer surface of the bearing unit housing is fitted and a positioning hole into which a boss portion of the mounting base is fitted.

24. (new) A working fluid injection apparatus according to claim 19; wherein the cover member has an outer surface configured to extend obliquely and outwardly from the upper surface of the bearing unit housing so that only a periphery of the cover member surrounding the lower opening thereof is in contact with the upper surface of the bearing unit housing.

25. (new) A working fluid injection apparatus according to claim 19; wherein the reservoir portion is configured to store a larger volume of working fluid than the gap between the bearing unit housing and the bearing unit shaft.

26. (new) An apparatus comprising:

a bearing unit having a shaft and a housing accommodating the shaft to form a gap between an inner surface of the housing and an outer surface of the shaft, the housing having a closed end, an open end, and a plate covering a portion of the open end except for a portion of the open end through which an end of the shaft protrudes outwardly from the housing;

an adapter supporting the bearing unit housing at the closed end thereof; and

a cover member having an upper opening, a lower opening, and a tapered inner surface with a radial dimension that increases gradually from the lower opening to the upper opening, the cover member being mounted in contact with the plate of the bearing unit housing so that the lower opening surrounds the portion of the open end through which the end of the bearing unit shaft protrudes and so that the protruding end of the bearing unit shaft and the tapered inner surface of the cover member form a reservoir portion that communicates with the portion of the open end of the bearing unit housing and that is configured to store a working fluid.

27. (new) An apparatus according to claim 26; further comprising a chamber that sealably holds the bearing unit supported by the adapter and onto which the cover member is mounted; a valve device that opens and closes an internal space of the chamber with respect to a surrounding external space thereof; an exhaust device that exhausts air from the internal space of the chamber to place the internal space of the chamber in a predetermined decompressed state; and a dispenser that dispenses a working fluid into the reservoir portion when the internal space of the chamber is in the predetermined decompressed state.

28. (new) An apparatus according to claim 26; further comprising a mounting base that supports the adapter; and wherein the adapter has a fitting hole into which an outer surface of the bearing unit housing is fitted and a positioning hole into which a boss portion of the mounting base is fitted.

29. (new) An apparatus according to claim 26; wherein the cover member has an outer surface that extends obliquely and outwardly from the plate of the bearing unit housing so that only a periphery of the cover member surrounding the lower opening thereof is in contact with the plate of the bearing unit housing.

30. (new) An apparatus according to claim 26; wherein the reservoir portion is configured to store a larger volume of working fluid than the gap between the inner surface of the bearing unit housing and the outer surface of the bearing unit shaft.